

IN THE CLAIMS:

1. (Currently Amended) A system for delivering a supply of gases to a patient comprising:
a gases supply providing a flow of gases,
a humidifier receiving said flow of gases from said gases supply and capable of humidifying said flow of gases up to a level of humidity prior to delivery to said patient,
a conduit conveying said flow of gases from said humidifier to said patient,
a sensor to sense the humidity, temperature or flow rate of said flow of gases, said sensor in use being releasably coupled in line between said humidifier and said conduit, and
a filter material being located such that said sensor is exposed to a portion of said flow of gases passing through said filter material only, with a significant portion of the flow of gases passing from the humidifier to the conduit without passing through the filter material.
2. (Cancelled)
3. (Currently Amended) A system according to claim 1 wherein said system includes a cartridge or open tubular section coupled to said sensor, said cartridge or open tubular section in use being releasably coupled in line between the humidifier and the conduit such that said sensor is exposed to said flow of gases through said cartridge or open tubular section.

4. (Previously Presented) A system according to claim 1 wherein said sensor is contained in a housing and said housing extends through or resides within a cartridge or open tubular section and at least part of said housing is exposed to said flow of gases.
5. (Cancelled)
6. (Currently Amended) A system according to claim 3 or 4 wherein said sensor is contained in a housing and said cartridge or open tubular section includes a port that said housing is sealably connected to.
7. (Cancelled)
8. (Previously Presented) A system according to claim 6 wherein said housing exposed to said flow of gases is covered by said filter material.
9. (Cancelled)
10. (Previously Presented) A system according to claim 6 wherein said port is covered by said filter material.
11. (Previously Presented) A system according to claim 8 wherein said filter material is a semi-permeable or hydrophilic material.

12. (Previously Presented) A system according to claim 10 wherein said filter material is a semi-permeable or hydrophilic material.
13. (Previously Presented) A system according to claim 8 wherein said filter material is monolithic film, microporous media or electrostatic filter.
14. (Previously Presented) A system according to claim 10 wherein said filter material is monolithic film, microporous media or electrostatic filter.
15. (Previously Presented) A system according to claim 1 wherein said system includes a sensor heater to provide heat to said sensor.
16. (Previously Presented) A system according to claim 15 wherein said sensor is contained in a housing and said sensor heater is contained within said housing.
17. (Currently Amended) A system according to ~~any one of claims~~ claim 1 through 16 wherein said humidifier includes a humidification chamber adapted to receive a volume of water and a water heater to heat said water, said flow of gases passing through said humidification chamber, through a gases inlet and out a gases outlet, and evaporating said water, said flow of gases thereby being humidified.
- 18-25. (Cancelled)

26. (Currently Amended) A system according to claim 17 wherein said humidifier includes a controller to control said water heater and the level of humidity or temperature of said flow of gases.
27. (Previously Presented) A system according to claim 26 wherein said sensor is connected to said controller and conveys a sensed level of humidification of said flow of gases to said controller, said controller controlling said water heater to alter said sensed level of humidification of said flow of gases to a predetermined humidification level.
28. (Previously Presented) A system according to claim 27 wherein said predetermined humidification level is such that said patient receives said flow of gases at 37°C and containing 44mg of water vapour per litre.
29. (Previously Presented) A system according to claim 17 wherein in use, connections are formed between one side of said cartridge or open tubular section and said outlet of said humidifier and the other side of said cartridge or open tubular section and said conduit.
30. (Previously Presented) A system according to claim 29, wherein said connections are one of a friction fitting, bayonet fitting, snap fitting or threadable connection.

31. (Currently Amended) A sensing device to sense humidity, temperature or flow rate of a flow of gases after said flow of gases have been humidified by a humidifier and providing feedback to a controller which controls said humidifier, said sensing device comprising:

a cartridge or open tubular section,

a sensor, and

a filter material,

wherein said cartridge or open tubular section is coupled to said sensor, such that said sensor is exposed to said flow of gases through said cartridge or open tubular section, through said filter material being located such that the sensor is exposed to a portion of the flow of gases passing through the filter material only, with a significant portion of the flow of gases passing through the cartridge or open tubular section without passing through the filter material.

32. (Previously Presented) A sensing device according to claim 31 including a housing containing said sensor, said housing extending through or residing within said cartridge or open tubular section and at least part of said housing being exposed to said flow of gases.

33. (Previously Presented) A sensing device according to claim 31 wherein said filter material is a semi-permeable or hydrophilic material.

34. (Previously Presented) A sensing device according to claim 31 wherein said filter material is monolithic film, microporous media or electrostatic filter.

35. (Previously Presented) A sensing device according to claim 31 wherein said sensor has a heating element attached to minimize saturation of said sensor.

36. (Previously Presented) A sensing device according to claim 32 wherein said sensor housing has a heating element attached to said housing to minimize saturation of said sensor.